

TAKOMA PARK MOBILIZATION ENVIRONMENT COMMITTEE

DRAFT CLIMATE ACTION PLAN COMMENTS

GENERAL COMMENTS

Overall, the draft Climate Action Plan (Plan) contains a great deal of useful information and analyses. Takoma Park Mobilization Environment Committee (TPMEC) members appreciate the effort that went into the Climate Technical Workgroups, the development of the draft Plan, and the convening of focus group sessions with representatives of Black, Latino, immigrant and other generally marginalized communities in the County, as well as the outreach carried out by the Resilience Ambassadors. The multipronged outreach efforts by steering team members after the draft Plan was issued also showed a strong commitment to build understanding of the Plan across the County.

The reviewers further appreciate the following aspects of Plan sub-sections:

- The Plan notably outlines a racial equity and social justice approach and applies this to many of the proposed actions, by means of scoring the action's likely co-benefits for racial equity and social justice, and proposing some potential 'equity-enhancing measures' for many of the actions.¹ The vulnerability assessment is strong and a helpful analysis in combination with other climate change impacts.
- The Plan lays out an implied priority ranking of actions through the ranking of actions based on the size of their contribution to GHG reductions. In the Buildings section, there is also a logical sequence of actions implied. This helps to give an overall, general sense of priorities.
- The Plan provides a good focus on building performance standards; however there is insufficient focus on or prioritization of energy conservation or efficiency (which is discussed in more detail below).
- The Energy and Adaptation sections by and large capture most of the major actions suggested by the Energy Working Group and the Adaptation Subgroup. The Energy section identifies the need to transition to 100% renewable energy for the entire county, including through advancing photovoltaic energy generation in the built environment, while advocating for this standard for the entire state. The Adaptation section includes important actions to reduce climate risk.
- The Plan does a reasonable job of addressing two Sequestration Workgroup goals; Goal 1: **Strengthen land use policies** to provide a foundation for maximizing carbon sequestration and increasing resilience; and Goal 3: **Move from silos to systems change - taking a "whole systems" approach** that enables innovation to increase carbon sequestration in ways that maximize co-benefits for adaptation. As discussed below, the final Plan could be strengthened with regard to Goal 2: **Accelerate** the implementation of **carbon sequestration strategies using nature-based climate solutions** across all County programs and policies.
- The Governance section is important and quite well done as a general outline for action.

¹ Special thanks to Dorcas Robinson for her thorough and careful reading of the social justice and racial equity aspects of the Plan.

- The Plan features some innovative approaches to engage community residents and transform climate education in the county.

While recognizing these strong points, TPMEC believes the Plan lacks key elements critical to an actionable, realistic plan, a number of which were described in Tasks 4 and 5 of the RFP. The cross-cutting missing elements are listed below; with section-specific recommendations detailed at the end of this comment document. Integrating these elements into the final Plan is crucial to producing an inspiring, actionable, and politically and financially feasible Climate Action Plan that also addresses the structural roots of social justice and racial equity in Montgomery County.

MISSING KEY CROSS-CUTTING ELEMENTS

While comprehensive in some aspects, the draft Plan is more of a strategy than an action plan. In some aspects, the Plan lacks a sense of urgency and fails to clearly identify the action steps needed to address the climate emergency we are facing. The final Plan should include implementation steps with proposed target dates or years and estimated costs (if available), consistent with the County's RFP, *Subtask 4b: Identify the steps necessary to implement each priority mitigation and sequestration action.*

In addition, the Plan lacks an analysis of the state or federal legislation that would be needed for the County to successfully implement key actions, other than Community Choice Energy. The final Plan should include state and/or federal legislation (and funding needed if possible) to implement the actions, consistent with RFP Subtask 4b which calls for the Plan to "*outline the steps necessary to implement each priority action, including changes to County, State, or Federal law*" (emphasis added). More specific comments are detailed below.

1. Methodology

The Plan and Appendices are missing the assumptions and inputs that the modelers used to achieve the 80% GHG reduction by 2027 and the 100% GHG reduction by 2035 and what GHG reduction outputs the various input policies and programs achieved. It is not possible to properly evaluate the outputs of the model without this information.

2. Prioritization and Implementation Actions

The final Plan should clarify that the recommendations are NOT a menu with options for action. Rather as has been explained in the briefings on the draft Plan, ALL of these actions are needed to achieve the GHG reduction goals. This should be stated and explained several times in the document, beginning with the Executive Summary.

The Plan needs to be much more transparent and obvious about timelines for actions. This should be part of the Executive Summary. Also, a table or figure laying out a timeline for what must be accomplished by when will create both a roadmap for implementation and a sense of urgency and commitment.

Specifically, in order for the Plan to be implemented quickly -- as needed for the County to meet its greenhouse gas reduction goal of 80% by 2027 -- there should be a list of prioritized actions and implementation steps per RFP Subtask 4b, including other considerations such as *“return on investment (cost vs. benefit).”* While there were several helpful figures that provided a snapshot of this kind of analysis and some implied priorities -- for example, the actions offering the biggest GHG reductions are clearly priorities, as noted earlier -- the Plan did not include implementation steps and a cost benefit analysis for each action. The final Plan must include this information for the three GHG reduction areas -- energy, transportation and buildings. Similarly, the final Plan should include a prioritization of and implementation steps for adaptation actions consistent with RFP Subtask 5c which calls for the Plan to *“prioritize the most impactful adaptation actions at a strategic level (explicit modelling of adaptation actions is not required). Outline the steps necessary to implement each priority action, including changes to County, State, or Federal law.”* Actions in the final Plan should have an accompanying set of public outreach and engagement elements that will be essential to accomplishing the actions. Similarly, it must include actions and metrics for racial equity and social justice to ensure implementation of the Plan includes concrete actions and measures of progress.

3. Proposed Legislation

As noted above, the draft Plan includes general, vague references to legislation or regulations needed without specifying when or how the County will develop the legislation or regulations needed. The final Plan should include critical County commitments for example, *“The County will immediately establish a process to ensure that no significant legislation, capital investment, or operating expenditure is misaligned with the County’s GHG emissions reduction goals. Any draft legislation or funding not aligned will be rejected and revised to align with the climate goals.”*

The final Plan should include a list of County legislation that the County Council must pass in order to implement key actions, as well as an estimate of the annual funding that would be required. The list should also include targeted timeframes for when legislation would need to be introduced (i.e., the priorities and sequencing of legislation). Similarly, the final Plan should include a list of state and/or federal legislation that would be needed or helpful for implementation of the Plan. A list of necessary state legislation could guide the County Executive and County Council when they determine state legislative priorities prior to the start of each Maryland General Assembly. *[Note: an example is proposed SB227/HB295 which would require updates to the state stormwater design standards to reflect climate change-driven changes to precipitation. Changes to state stormwater standards are needed to ensure that Montgomery County as well as counties in our watershed improve stormwater management to better adapt to increased precipitation and flooding.]*

4. Resourcing the Plan

Currently, the Plan makes only general suggestions on the need for funding. The final Plan should call for specific funding, including staff, needed by the County to achieve the goals and actions (see also comments on the **Paying for Climate Action** section below).

5. *Social Justice and Racial Equity*²

The draft Plan provides a definition of Racial Equity and Social Justice, and includes analysis of some of the ways in which historical practices and current disparities impact Black, Latino, immigrant, and people of color communities. It offers a Racial Equity and Social Justice Approach, and applies this to many of the proposed actions, by means of scoring the action's likely co-benefits for racial equity and social justice, and proposing some potential 'equity-enhancing measures' for many of the actions. However, this is only to do what is essentially required of County strategies and departments plans by the County's Racial Equity and Social Justice Act (December 2019). The Plan and its implementation steps must go further, in the following ways:

- **Recognize that social justice has other dimensions that are not discussed in the draft Plan.** Critical gaps include robust discussion of the priorities of the County's youth and of the labor movement. Issues of gender, disability and intersectionality are barely touched upon, and children and the elderly are only mentioned in terms of their potential vulnerabilities, not as actors in a living Plan striving for a safe and secure climate for all. Social justice is about intergenerational justice, the right to dignified, well-paid jobs, and taking an intersectional approach to developing policies and programs.
- **Transform the playing field in which the Plan is finalized, and becomes implementation plans, regulatory change and legislation.** The current Racial Equity and Social Justice Approach has been applied by people who are not members of key groups (minority, youth, labor etc). The latter groups should be the ones scoring each action for its contribution to advancing their priorities. At a minimum, the next couple of months should see a large-scale, concerted effort to engage key groups as decision-makers in, not simply commenters on, an effort to develop an emergency implementation plan.
- **Integrate Racial Equity and Social Justice issues as specific, concrete actions and goals in the Plan, instead of leaving them as ancillary co-benefits:** The commitment to racial equity and social justice must be elevated beyond a technical approach for screening actions, to a core set of actions embodied in the Plan, organized around the need to provide more jobs and economic opportunity to the low income and marginalized sectors of the County; specifically plan service delivery paths to address the health hazards to which minority and low-income communities will be disproportionately exposed; build more affordable housing and develop creative ways to support greater food security. In these efforts, the County can build on systems and initiatives it already has under way. For example, the County could invest more in the Latin American Youth Center, to ensure that young people from Latinx communities are trained and given priority for starter green jobs that open up as the County supports building retrofits and more energy efficiency. Community gardens organized and managed by local neighborhood associations in lower income neighborhoods can help meet family nutritional needs at low cost; any surplus produced could be oriented to local farmers' markets. More "service hubs" like the one at BlackRock Hub can help address legal, health and food needs.

² This section was provided by Dorcas Robinson.

In sum, the Plan itself should be a plan that supports a movement for a just transition towards the climate goals of the County. The County will not mobilize the change needed without the political support and voice of racial equity and social justice groups; the climate actions required for attaining the goals must not be implemented without putting the voice and priorities of key groups front and center.

6. Climate Refugees

The Plan does not mention the impact to the County from climate refugees possibly moving to the County from other parts of Maryland, other states, or other countries. This would impact many of the actions in the County in the future and should be mentioned and addressed as a climate impact.

SECTION-SPECIFIC COMMENTS

1. Energy Chapter

- A. Target:** “Electricity consumed in the County is carbon-free by 2030” should be clarified with the word ALL. This is identified in the narrative (“By 2030, 100% of the electricity used in the County must be generated from renewable sources”, page 89) and should be clear in the target.
- B. Headlines:** The Headlines are both appropriate and necessary and largely represent the five goals of the Clean Energy Technical Advisory Committee³
- Montgomery County uses and invests in carbon-free, reliable, affordable electricity.
 - Ensure broad access to affordable zero-carbon electricity.
 - Create clean energy jobs, secure funding to support clean energy, and optimize economic activity in clean energy.
 - Expand renewable electricity generation and use of distributed energy resources.
- C. Energy Efficiency:** The Plan correctly notes that “Achieving the County’s energy target will involve leveraging both energy efficiency and distributed renewable energy resources” (p 89). However, a greater emphasis should be placed on energy efficiency overall. Reductions in energy use and decarbonization historically have derived as much from efficiency as from mode switch (switching from fossil fuels to clean energy):

³ Goal 1 – Green the electricity supplied to Montgomery County residents and businesses.

Goal 2 – Expand the use of distributed renewable energy.

Goal 3 – Expand the use of renewable energy to power buildings.

Goal 4 – Encourage economic development related to renewable energy

Goal 5 – Establish a dedicated, secure funding source to support renewable energy programs and financial incentives.

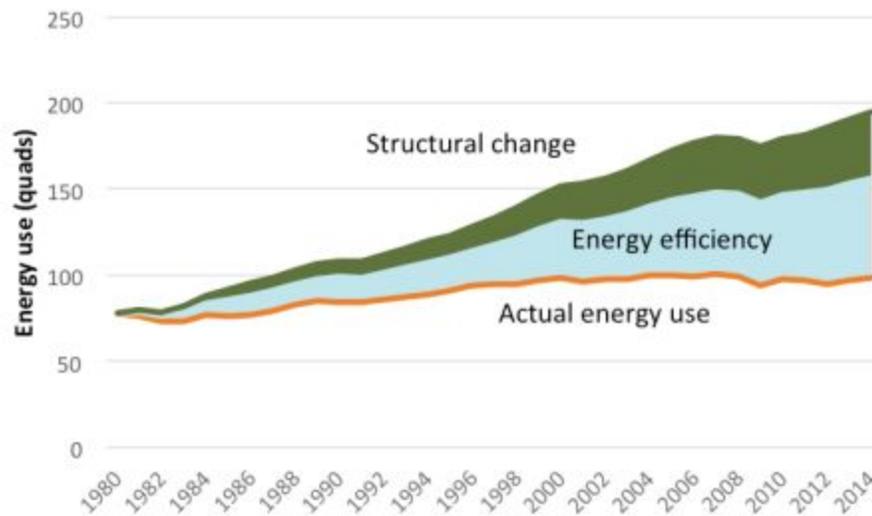


Figure 1. Energy use, 1980–2014: actual use and estimates of structural and efficiency impacts.
 Source: ACEEE analysis based on data in EIA 2015a and Huntington 2009.

Energy efficiency measures also notably lower the medium- and long-term need for new generation capacity and lower consumer energy costs. This can and should be brought out as a strong selling point in the Plan. Many of the needed energy efficiency gains are addressed at the “end points of use” – e.g., in the Building and Transport sections of the Plan – but efficiency gains in the power generation sector also should be examined.

A robust public outreach campaign matched with financial incentives is needed -- in multiple languages and through diverse channels (radio, bus ads, social media) -- to inform residents of the advantages of energy efficiency in HVAC use, home appliances, and electronics. The in-home energy use topic doesn't seem to be addressed anywhere else in the Plan but it certainly can be important for overall electricity use in the County. In general, it would be valuable for the Plan to discuss conservation (reducing consumption) as well as efficiency (using energy more efficiently). Although personal actions was not a topic of a separate working group, the Plan should have a section that identifies the importance of personal responsibility for energy-related actions (including purchases of energy-efficient appliances, managing the building thermostat and driving less) to complement the sectoral based approaches in the Plan. It is important for the Plan to emphasize that meeting the County's climate emergency goals will require a combination of actions by government, businesses, and individuals.

Also related is the need to continually monitor and improve energy performance, for both emissions reduction and cost reasons. To get to that, the County can emphasize increasing use of sensors and “smart” systems to help commercial and residential buildings monitor where

they need more heating or cooling at what time of day; and then use programming and variable speed motors to get the right temperature to the right place. The spread of smart sensors can help the County, residents and businesses get smarter faster about their energy use. Section B7 alludes to this point through the “intelligent building” reference but it could be brought out more for its potential to drive increased energy efficiency at the residential level.

- D. Introduction to the Clean Energy section** (p 89) needs major rewriting. About half of the introduction discusses the current controversy about generation of solar energy in the County Agricultural Reserve. The County Council is largely resolving the issue as a policy issue in February 2021. Regardless of one’s position on the issue, it is inappropriate for the Introduction to focus on one issue that is not core to the recommendations.

If there is any discussion of siting of facilities, it would be appropriate to take note of or quote the framing statement from the Clean Energy Working Group, “it would be counterproductive for the County to reduce greenhouse gas emissions by turning forests, farmlands and wetlands into industrial facilities for energy capture. These vegetated lands and the soil beneath are important in capturing carbon from the atmosphere, reducing the urban heat island and providing clean water, clean air, biodiversity and other ecosystem services. Preservation and protection of the environment should be an essential component of the County’s shift to net zero.”

It also would be useful for the Introduction to include the framing statement from the Clean Energy Working Group, “Montgomery County is presently not capable of meeting all of its needs for emission-free energy only by energy generated within the County. The goal is independence from non-renewable fossil fuels, not energy independence for the County. Nevertheless, the County should develop renewable energy sources and economic opportunities within the County, including distributed energy captured on buildings and other structures, microgrids, and with larger scale commercial facilities.”

The introduction could note that the recommendations primarily are of two types. First is state-level policy E-1 and E-5 that will “green the grid” by enabling Montgomery County to implement opt-out Community Choice Energy (CCE) and to require Maryland to move to a 100% Renewable Portfolio Standard (RPS). The remainder of the recommendations are to convert buildings to photovoltaic generation: new commercial and residential buildings (E-2), primarily through regulations and requirements; existing buildings (E-3), through a combination of financial incentives and education (not discussed sufficiently); and public buildings (E-4). The introduction could note that the low GHG reduction impact of converting public buildings is only because there are relatively fewer public buildings.

The statement in the Introduction, “If the utilities do not provide 100% renewable energy to the grid, a potential option for the County, assuming change in state law to allow it, would be to establish an opt-out Community Choice Energy (CCE) program and purchase renewable energy for its residents” under-emphasizes Recommendation E-1 to establish CCE. It is clear that the

utilities are not going to provide 100% renewables unless pushed or required to do so. The Technical Advisory Committee recommended two actions to make the grid 100% renewable energy (at least for the County) – E-1 Community Choice Energy and E-5 advocating for 100% Renewable Energy Portfolio standards (RPS) for Maryland. Both should be mentioned in the Introduction.

While mentioned in the Introduction, equity and job building opportunities in the energy sector should be given a more prominent role. In particular, the County should prioritize finding ways to make sure that any new jobs generated by the CCE or other energy measures are strongly advertised in low-income communities. This may call for translation of the ads and getting them out by local radio stations, outreach through churches.

E. Action-Specific Comments

E-1 Community Choice Energy (pp 91-92) is accurately described. The summary “Authority: Outside County – Requires County Collaboration with Other Public or Private Entities or Is Outside County Authority” needs clarification. As noted, state legislation is needed to provide the County the ability to offer opt-out CCE, but there is no explanation of the photo at the bottom of p. 92. It should be noted in the photo caption or in the text that: 1) state legislation to give the County authorization for an opt-out CCE has been introduced in 2020 and 2021, 2) the photo is from 2020 (note no masks and no distancing!), 3) the legislation has support from the County Council and County Executive Marc Elrich. In addition, as noted, earlier, the write-up for this activity must ensure that the energy efficiency measures include: a) financing for low income families, and b) a public education campaign (referenced above) to make clear to people that they can save money over time with energy efficient purchases.

E-2 Private Building Solar Photovoltaic Code Requirements (p 93). This recommendation only discusses requirements for new construction and substantial modifications, despite the accurate statement, “To do this, a combination of voluntary measures and strict code requirements are needed”. It would be useful to have an estimated quantification of the amount of photovoltaic energy that would be generated by an “all solar” requirement on new construction. There should also be discussion of non-regulatory means to incentivize and encourage transformation of existing buildings to in-situ solar.

The statement “However, given the financial investments associated with this action, solar costs are likely to be passed onto renters (both residents and small business owners) and new buyers, which may create affordability issues (especially for first-time buyers or those on a fixed income)” could be evaluated using data from California and perhaps other localities where there are requirements for solar construction.

E-3 Promote Private Solar Photovoltaic Systems (p 94-96). This section is well done, especially on the financing issues of converting to PV. Recommendations regarding existing buildings from

the Technical Committee should be included.⁴ This section also identifies the significant knowledge barrier for homeowners and owners of other buildings who may consider installing PV capture and storage systems. The County should consider either establishing a solar education office or partnering with a non-profit organization that could be a clearinghouse and honest broker to help the owners to navigate the complexities of going solar.

E-4 Public Facility Solar Photovoltaic Installations and Groundwork. This section seems to discuss what the County has already done more than what the County needs to do. The narrative should point out that although the GHG reduction potential is low related to the other actions (because of the relatively small acreage of public facilities compared to private facilities), it is essential that the County, including the school system, install renewable energy on all of its facilities: 1) to reduce costs (as mentioned), 2) to serve as an example and provide demonstration and education projects – such as on schools, 3) because it can be done without depending on other entities. This section is limited in only considering PV, and does not even mention geothermal (which may be especially viable for clusters of public facilities) and wind (which may not be worth mentioning because of location issues). See what the Technical Committee recommended.⁵

Furthermore, there are ways to elaborate on E-4 Public Facility Solar Photovoltaic Installations and Groundwork (Solar in Schools). We received comments from the Project Manager for the Washington DC 11MW deployment of Solar on 35 DC schools and other public buildings that is saving DC taxpayers \$25 million and at zero cost to the city. He notes that MoCo is now the

⁴ Action 2.1.1 – Examine the benefits of reinstating County’s property tax credit for solar and geothermal systems
Action 2.1.2 – Analyze the need for warranty or insurance product that covers costs of roof and PV system maintenance with the Montgomery County Green Bank and other parties.

Action 2.5.4 – Create an incentive to support small (less than 300 kW DC) commercial installations or installations on non-profits’ properties.

Action 3.1.1 – Make efforts to convert existing buildings into solar ready buildings and offer incentives for such retrofits (similar to incentives offered under EmPower MD).

Action 3.1.2 -- Evaluate feeder line expansion by utilities to account for future solar needs and installation sizes in each neighborhood.

⁵ *Strategy 2.3 – Expand the use of solar on public facilities.*

Action 2.3.1 – Develop a ranking system to categorize sites based on economic, environmental, and social considerations.

Action 2.3.2 – Take advantage of any federal, state, and other funding sources to support deployment of solar on public facilities.

Action 2.3.3 – Maximize use of solar on public school facilities.

Action 2.3.4 – Develop/require communication and engagement tools at all public and commercial solar facilities to take advantage of opportunities to educate the public on the benefits of solar.

Action 2.3.5 – Develop multi-site solar PV project on public facilities through Power Purchase Agreement or similar mechanism to facilitate economies of scale.

furthest behind in the region in taking advantage of the low hanging fruit of deploying solar PV on schools. Arlington, Fairfax, and Frederick Counties have already let large RFPs to deploy solar on their schools. Being behind has its advantages, as MoCo could conduct a formal Benchmarking Study to collect Best Practices and Lessons Learned from the neighboring counties. There are some critically important issues related to roofs that need to be addressed in the Procurement & Acquisition Plan. For example, in 2019 Fairfax County put out a Request for Proposals (RFP) for solar on roofs, but the RFP was flawed in being ONLY for solar and did not address the Roof Warranties, which can be for less than 25-year life span of a PV collection facility. The Power Purchase Agreement has a 25-year life, BUT the roofs have warranties that are less than that (20, 10, 12, 5, etc. years remaining) so the roof will need to be serviced at the end of its Warranty Period to maintain the warranty. You can NOT have a commercial roof without a warranty yet in order to maintain the warranty you would have to remove the Solar Plant which damages the system and costs a fortune and undermines the entire business case.

E-5 Advocate for a 100% Renewable Portfolio Standard by 2030. This section is pretty straight forward. For clarity, add Maryland to the headline. Also, it would be good to note that energy sources such as energy generated by incineration currently are included in Maryland's Tier 1 list of renewables, which is problematic.

F. Other Considerations Under Clean Energy

The Technical Committee included several other recommendations that could be considered enabling or implementing actions. These should be at least mentioned in this section (not just in the appendix). The current draft primarily focuses on generation of renewable (largely PV) energy. However, to fully achieve the potential for “decarbonizing the grid”, issues of storage and capacity need to be solved. See the Strategies 2.6 and 2.7 of the Technical Committee recommendations.⁶

The Technical Committee strongly emphasized the importance of assessing the County's potential for generation of renewable energy and for prioritization of new energy development in urbanized areas of the County where losses in transmission would be less and where the

⁶ *Strategy 2.6 – Working with the Public Service Commission and electric utilities, support an assessment of the ability of utilities to incorporate additional distributed energy.*

Action 2.6.1 – Examine issues of feeder capacity, safety, load control, and grid stability.

Action 2.6.2 – Ensure rate systems equitably distribute costs among ratepayers.

Action 2.6.3 – Examine impact of battery systems on grid.

Strategy 2.7 -- Review the feasibility of implementing more energy conversion efficiency technologies in Montgomery County (i.e. co-generation, co-process, and heat recovery).

Action 2.7.1 Review the feasibility of community-based energy systems and energy storage.

environmental impact would be smaller. Note the recommendations related to this point that were included.⁷

Although the summary on page 89 mentions economic issues, the Plan should explicitly discuss economic development opportunities and education needs, even though the GHG reduction potential of these actions may be hard to quantify (see Technical Committee recommendations).⁸

⁷ *Strategy 2.2 – Assess feasible public and private locations for solar and wind installations of various scales in Montgomery County and adjacent jurisdictions.*

Action 2.2.1 – Develop a ranking system to categorize sites based on economic, environmental, and social considerations.

Action 2.2.2 – Evaluate financial incentives to encourage solar development on brownfields and other preferred solar locations.

Action 2.2.3 – Examine feasibility of solar on industrial sites like the Dickerson power and incinerator facilities.

Action 2.2.4 – Work with other jurisdictions and the State to ensure coordinated efforts related to siting renewable energy facilities.

⁸ **Goal 4 – Encourage economic development related to renewable energy**

Strategy 4.1 – Increase education in renewable energy and sustainability.

Action 4.1.1 – Offer an Associate of Applied Science in Renewable Energy at Montgomery College (MC) and provide 100% free tuition for County residents who obtain this degree.

Action 4.1.2 – Provide incentives for solar companies, public utilities, and public agencies to offer internships for students enrolled in Renewable Energy program at MC.

Action 4.1.3 – Provide incentives for solar and other renewable energy companies and public utilities to offer apprenticeship programs/on-the-job training.

Action 4.1.4 – Provide scholarships for degrees in environmental sustainability programs at State universities.

Strategy 4.2 – Establish a Green Technology Innovation Fund to attract and support promising business start-ups offering solutions that reduce GHG emissions and/or contribute to essential clean energy infrastructure.

Strategy 4.3 – Encourage social enterprises, non-profits, and small and local businesses developing renewable energy solutions.

Action 4.3.1 – Prioritize social enterprises, non-profits, and small and local businesses developing renewable energy solutions in Montgomery County's bids and RFPs.

Action 4.3.2 – Lower tax liability and generate incentive mechanisms for any conversion to clean energy that has been worked on by social enterprises, non-profits, and small and local businesses developing renewable energy solutions.

Strategy 4.4 – Encourage union workers to be contracted and develop renewable energy solutions.

Action 4.4.1 - Prioritize companies that use union workers in Mo Co's bids and RFPs.

Action 4.4.2 - Lower tax liability and generate incentive mechanisms for any conversion to clean energy that has been worked on by these companies.

Because the Plan emphasizes economic development and equity as well as GHG reductions, the goal “Encourage economic development related to renewable energy” (amended to “encourage economic development *and equity* related to renewable energy” should be identified as E-6 and then elaborated with the strategies and actions articulated in Goal 4 of the working group.

G. Additional Comments on Issues Not Recommended by the Working Group

Other fuel sources – The Plan focuses on photovoltaics, but there are other sources that should be considered in the process of decarbonizing. Geothermal energy can be economical in certain circumstances for heating and cooling buildings.

Biomass is excluded, yet capturing methane, which is 25 times more potent greenhouse gas than carbon (although shorter-lived in the atmosphere) is critical. The County could both capture (where feasible) and use biogas from sewage and water treatment, food processing, landfills, and agriculture (including aquaponics & hydroponics, community gardens, etc).

Biogas can be an important substitute for fossil (fracked) natural gas for purposes such as cooking fuels (especially for restaurants). On the county level, it would be prudent to use the pure biogas on-site for space-heating, cooking or industrial processes, or electricity production to offset fossil natural gas while intercepting methane that is far worse than carbon and is accelerating climate change. Biogas makes more impact in commercial, industrial, and institutional uses. Some companies are marketing biogas for residential uses.

H. Proposed Changes to Recommendations Developed by Clean Energy Technical Working Group

1. Change Action 2.3.3 as shown below

Strategy 4.5 – Promote an economic transition that is just and fair for all workers, especially those that have been laid off by “conventional” power production.

Action 4.5.1 – Encourage the establishment of new unions organized “by sector” (i.e. a “solar workers union”, a “wind workers union”, etc.).

Action 4.5.2 – Ensure workers employed in “conventional” power production find new satisfying and well-paying jobs with the transition to clean energy.

Action 4.5.3 – Coordinate with WorkSource Montgomery and its American Job Centers to emphasize renewable energy and efficiency career support and partnerships.

Strategy 4.6 - Emphasize the clean energy future in K-12 school curricula (see Italy example) or extracurricular programs, especially in collaboration with Thomas Edison H.S. of Technology; use solar + storage on all schools (see Action 2.3.3) to educate students on environmental and energy issues.

Strategy 4.7 - Explore more public private partnership opportunities to support innovation opportunities.

OLD: Action 2.3.3 – Maximize use of solar on public school facilities.

NEW: Action 2.3.3 – Maximize use of solar on public school facilities with acquisition plans that take advantage of best practices and lessons learned from neighboring jurisdictions (e.g., DC, Arlington, Fairfax).

2. Develop Solar PV Canopies or Carports. The Washington Nationals Canopy Case Study installed PV without any cost to the owners of the Nationals.

3. Add Action 2.1.6 – Conduct Cost Benefit Analysis to develop a Prioritized list of Solar PV Projects that provide the highest Return on Investment (ROI) for the county. Utilize the results to inform the long-term facility maintenance and procurement plans.

2. Buildings Chapter

The draft Plan included an insufficient focus on or prioritization of energy conservation. There are both economic and geophysical signs that our future energy footprints will be forced to shrink, and that renewables will not be sufficiently available in time to help us maintain our current energy consumption levels. The County should invest in education, incentives, and other measures to help both the public and private sectors reduce energy use through conservation wherever possible. (See discussion in Energy comments above.)

3. Transportation Chapter

Given that approximately 40% of greenhouse gas emissions are due to the transportation sector, it is critically important that the County take concrete steps in the very short term to reduce residents' reliance on internal combustion engine (ICE) vehicles. The Transportation Technical Workgroup focused on public transit, self-powered modes of transportation (biking/walking) and vehicles powered by alternative fuels. TPMEC is extremely pleased to see that the Plan incorporates almost all of the recommendations identified by the Transportation Workgroup. As the County initiates implementation of the many priorities outlined in the Plan, TPMEC strongly suggests the County consider the following recommendations.

A. Inequity in Access to Transportation (p. 19)

The Plan proposes expanding public transit service so that most residents are within 1/2 mile of the nearest transit stop and wait times will be 15 minutes or less during peak hours. These improvements will greatly address inequities in access to transportation. The County must keep in mind however, that most commuters who have a long bus ride to the nearest metro, such as residents in the Tobytown community described in the Plan, will not benefit from a planned expansion of BRT. A 40-minute bus ride to the metro is onerous, especially given that this is just one leg of a one-way commute - the County should consider means of addressing this, particularly in outlying communities where ridership is low. (As an aside, a map could really be

instructive in this section - showing areas of highest traffic vs. neighborhoods of poor and minority populations.)

Electrification of 100% of cars is essential to meet climate goals, as the Plan states, but there are clear economic considerations and disparities to doing this that the county must find a way to address. During the transition to all electric vehicles, there may be issues of gasoline availability and price that could also have disparate impacts. This is especially true given that lower-income populations may be more likely to have essential uses of cars (Uber drivers, etc.).

B. Figure 23 (p. 63-64)

It is difficult to make sense out of this table either to convey information to the public or to use if as a planning/decision tool. For instance, Action T-7 (Expand the Electric Vehicle Charging Network) and Action T-3 (Private Vehicle Electrification Incentives and Disincentives) not only both contribute (and are in fact essential steps to) electrifying the vehicle fleet, but they cannot be disentangled - were the benefits of electrifying the fleet simply divided between these (thus making each look lower than they actually are)? Also, expanding the charging network is, in a way, an incentive itself. Not only that, but there is a considerable range of possible incentives and disincentives possible, with varying expectations of moving the market, and yet they are all included in one step here. How can the benefits be fairly allocated between these two actions? Either the Plan is indicating differences between various approaches (in which case the chart should include more individual actions) or it is showing how much GHG can be reduced (in which case these actions should be consolidated). As presented, the chart does neither. A better way might be to show the benefits of electrifying 100% of private vehicles (as the Plan includes elsewhere) and compare that to other types of actions (if needed).

C. Transportation Section (p. 114)

100% carbon-free transportation should be included in the overall description, not only the targets. "Electrify vehicles" should be "electrify all vehicles".

D. Table 15 (p. 116)

The transportation sector represents 42% of the county's GHG (with on-road vehicles comprising "the single largest source of emissions in the County"). Thus, it is not apparent why none of the actions in the table indicate a High GHG reduction potential. This warrants further clarification, especially given that the plan is supposed to include bold, out-of-the-box thinking. As it currently stands, this plan is insufficient if there are no highly effective items in the transportation sector, and specifically for private cars.

E. Action-Specific Recommendations

T-2 Expand Active Transportation and Shared Micromobility Network (p. 120) - This section holds significant promise but is quite short. Expand by adding necessary infrastructure and other changes to make this workable (set-aside lanes for slower-than-car micromobility traffic, sidewalk curb-cuts for mobility scooters, etc.), possible County roles in championing micro-vehicles (“golf carts” and three-wheelers), etc. Presumably there are many more details in the Master Plans - the County should highlight items in those plans that will be prioritized.

T-3 Private Vehicle Electrification (p. 121) - This section could be strengthened with a number of “car owner support” and other ideas as developed by the County’s Transportation Workgroup. Surprisingly, the impact of this element is a “medium” reduction of GHG, when, it is clear, if implemented forcefully, this would achieve very high reductions. The county should commit to eliminate all gasoline-powered vehicles by 2027 since that is an obvious step in reaching zero carbon emissions, and then rewrite this section in its entirety to reflect what would need to be done to accomplish that. The ideas are already there (to some extent, at least in general terms); what is lacking is the degree of urgency and the connection between the extent of action needed and the goal.

T-5 Electrify Public Buses and School Buses (p. 125) - Excellent section! In the final steps to implementation, the County may want to expand this in three ways. First, include other forms of transportation related to the bus network, such as vans and other forms of last-mile transit. Second, include the need to pressure WMATA, city fleets, circulators, etc. to electrify their buses to continue to operate in the County. Third, address electrification of buses and similar transport modes owned by other entities - churches, camps, private schools, etc.

4. Sequestration Chapter

The Sequestration Chapter is not as comprehensive as what was included in the Sequestration Technical Workgroup’s Recommendations. Areas that are missing from the draft Plan are the following.

A. Role of Farmers and Ranchers

The potential role of farmers and ranchers to assist in carbon sequestration could be greatly strengthened. Recent reports show how farmers who shift from growing commodity crops to regenerative table, fruit and nut crops, and pastured animals can sequester more carbon in their soils, reduce costs, and improve profits. The Plan could include more emphasis on providing training and education to achieve those goals.

B. Local Food Self-Reliance

The Plan could address the issue of local food self-reliance. As climate impacts worsen and affect global and national food production, and as the energy costs of food delivery from outside

our region increase -- both of which will increase the cost of food -- the role of the Agricultural Reserve and wider regional table crop production will come to the fore. The Plan could be more explicit about protecting land currently and potentially suitable for table crop production. It does mention education and helping farmers find local markets for their crops -- and the priority of those efforts could be increased.

C. Action-Specific Comments

S-1 – Retain Forests

Textbox (Equity-Enhancing Measures):

- First bullet - this should be: “prioritize retention *and expansion* of forests...”
- Fourth bullet: What does it mean to enhance the wood products industry? How does this increase opportunities to retain forests? Suggest deleting the bullet unless it can be explained more clearly.

S-3 – Restore Forests, Meadows, and Wetlands - Native plants are mentioned in both the Sequestration and Adaptation chapters. When native species are discussed within the community, the assumption tends to be local (e.g., local to the state or region). There can be confusion about the appropriateness of “local natives” for a changing climate, because species range shifts will occur. The Plan states that “All planting projects should rely heavily on native tree species that will likely be able to adapt to the County’s changing climate” (S-3). This is clear to those with some technical knowledge but not necessarily for the general community. Education for the public, nurseries, and landscapers will be needed and should be mentioned in the final Plan.

5. Climate Adaptation Chapter⁹

As noted earlier, the Adaptation section is fairly comprehensive and reflects many of the Technical Workgroup’s recommendations. Below are two areas that should be addressed in the final Plan.

A. What’s Missing

Human Health Adaptation Actions – Goal 4 of the Adaptation Technical Workgroup Report included several actions to address climate change impacts related to human health. The draft Plan includes actions related to heat and weather-related human health and safety, but omitted other risks such as the increase in insect-borne disease (e.g., mosquito and tick-borne diseases)

⁹ Karen Metchis contributed comments to the Adaptation and Governance sections.

due to heat and humidity.¹⁰ The Plan also should recognize that increased temperature combined with air pollution, especially from diesel-powered vehicles, exacerbates smog which in turn creates greater risks for people with respiratory conditions (e.g., asthma). The final Plan should discuss these risks and include relevant adaptation actions.

Natural Resource Adaptation Actions - Goal 6 of the Adaptation Technical Workgroup Report included several actions related to natural resource adaptation. The intent of this goal and actions was to address the fact that natural resources, as well as human communities, are impacted by climate change. Changes in climate will exacerbate invasive species, pests, and diseases; alter species composition (both plant and animal); and change the habitats those species rely on. The strategies needed to promote natural resource adaptation are not the same as those for carbon sequestration. While some sequestration actions can be helpful for natural resource adaptation, such as retaining forests and restoring habitats, the Plan should include targeted natural resource adaptation actions. We recommend that the final Plan include specific actions for natural resource adaptation, including planting climate-adapted tree species, similar to those recommended by the Adaptation Technical Workgroup.¹¹

¹⁰ *Strategy 4.2 - Minimize food, water, and vector borne disease*

Action 4.2.1 - Hire a County entomologist to specialize in managing vectors of disease that are encroaching and becoming more prevalent in the County, as host ranges expand and over-winter

Action 4.2.2 - Expand the mosquito control program especially for the Asian Tiger (*Aedes aegypti*) mosquito

Action 4.2.3 - Install stormwater infrastructure abatement to reduce ponding

Action 4.2.4 - Manage deer population that carries disease from ticks

Action 4.2.5 - Work with WSSC to put in place a more robust Harmful Algal Bloom monitoring programs, including establishing baseline data to track incidents

Action 4.2.6 - Coordinate with the Potomac River Basin Commission and upstream communities to monitor HABs and reduce stressors that result in HABs

¹¹ *Strategy 6.1 - Conserve, expand, and connect natural and protected areas*

Action 6.1.2 - Develop a strategy focused on protecting the County's existing trees from extreme drought and flash drought, including educating homeowners on how to protect their trees from severe drought.

Action 6.1.3 - Provide an incentive for residential and multi-family property owners by providing a 0.5% annual property tax relief for every tree planted and healthy beyond 20 trees per acre.

Action 6.1.4 - Educate homeowners and the landscaping sector to eliminate mulch mounds that kill trees.

Action 6.1.5 - Educate homeowners and incentivize them to adopt low management lawns that are more resilient, sequesters carbon, and reduces use of motorized (fossil fuel powered) maintenance Action 6.1.6 - Plant native tree species in the mid to northern portions of their geographic range and facilitate migration of tree species that may be more suitable for Maryland's new climate

Action 6.1.7 - Update the 2017 Park, Recreation and Open Space Plan to expressly identify and address climate change impacts to parks and natural areas Action

6.1.8 - Prioritize land acquisition to protect existing parks and natural areas, create natural buffers, and enhance connectivity of natural areas and stream corridors Action

6.1.9 - Map and protect migration corridors for plants and animals adjusting to drought and other climate conditions

Action 6.1.10 - Increase protection of habitat for federal and state endangered and threatened species

B. Action-Specific Comments

A11 – Climate Adapted Building Code

- Retitle this action: *Climate—Adapted Building and **Infrastructure** Codes*. This action should be more explicit that it is about not just buildings but also infrastructure, e.g., roads, water infrastructure, bridges, dams, etc.
- This action needs a discussion of the need for updating precipitation statistics and floodplain maps in order to inform building and infrastructure codes. Additionally, it should discuss the fact that precipitation is getting more intense *and* is falling in short-duration storms that overwhelm infrastructure. Combined with land use change (i.e., more impervious cover) this is creating more runoff and flooding.
- Not all building codes need to be designed to the 500-year storm; however critical infrastructure does. Different types of infrastructure are designed according to different size storms.
- To build resilience for long-lived infrastructure, the County will need more stringent design standards to account for increasingly large storms (see comments about state legislation related to stormwater standards). The THRIVE Montgomery Plan should include ways to minimize new impervious surfaces. The Vulnerability Assessment discusses how the modeling shows marginal increases in precipitation – this should not be the end of this discussion. Downscaling of precipitation is suspect at this time so the County would need to conduct additional assessments or take different risk management approaches. For example, some jurisdictions are trying these:
 - build in margins of safety to accommodate increasingly larger storm events. Some jurisdictions are upsizing by 20%
 - conduct sensitivity analyses (volume and duration) to see what would prompt failures
 - simply adopt more stringent design standards. For example, instead of the 24-hr, 2-year rain storm for ESD and stormwater controls, adopt a 3-hr annual rain storm
 - Conduct comprehensive hydraulic and hydrologic modeling, including dynamic hydrologic and hydraulic (H&H) models, to test system performance and identify areas to target for improvements

A13 – Ban Stormwater Management Requirement Waivers

- Current building codes very weakly mention that runoff onto neighboring properties is not allowed, but it doesn't include any analysis, remedies or enforceability. If a homeowner is affected, they must take it on themselves to go to court without help from the County. This should be revised. Please add something to this effect: ***Furthermore, construction requirements should be amended to ensure that potential runoff onto neighboring properties is mitigated, and the County code should be amended to provide recourse for homeowners affected.***
- Actions can include an assessment of potential risks during the permitting process (including topography, drainage patterns, change in impervious area) and inclusion of

on-site or off-site remedies (e.g., installing drainage or additional ESDs on the affected neighboring property or subsidizing homeowners to do so, and at the least notifying the homeowner of potential impacts). This can include proactively facilitating access to the County raingarden program where such potential exists.

A14 – Update Floodplain Maps

- Last paragraph, amend last sentence: *“Requiring unmapped ~~floodplains watersheds~~ in the vicinity....”* It is unclear what is meant by “unmapped floodplains”.

A20 – Study Potential for Buildings in the County to Flood and Possible Remedies

- This action has real potential with some additions (see also comments on A11 and A13).
- This recommendation should reference G-16 and emphasize the need to conduct a thorough vulnerability assessment, e.g., that incorporates a combination of factors, e.g., land use change, topography, rainfall, floodplains, and capacity (and age) of stormwater and drainage infrastructure. A dynamic H&H model could help with this.
- Amend paragraph 2 - This is not just about *catastrophic* flooding or (in paragraph 3) *extreme* flooding. The mis-named ‘nuisance’ flooding is just as important. Harms include both health impacts (mold and asthma) and financial harm for cleanup and restoration.
- It should be noted that most flooding does not occur within FEMA floodplain areas. Most people do not know that: 1) even if they are not technically in a designated floodplain, there is still risk of flooding; 2) even if their home is not in a designated floodplain they can buy FEMA flood insurance at a modest price; 3) their homeowners insurance does not cover flooding from runoff; or 4) they are vulnerable to flooding from runoff (especially in areas undergoing redevelopment). There should be an aggressive public education campaign to better inform homeowners.

6. Governance Chapter

This is an important section and was generally well done. Below are some suggestions to strengthen it.

A. Action-Specific Comments

G-6 - Designate Climate Ambassadors within Each County Department

- It is laudable that the County intends to (and perhaps has) identified Climate Ambassadors with each County Department. This is similar to what New York City did about 5 years ago. As a cautionary note, New York City had longer-term difficulties maintaining that model and they evolved to departmental resilience teams (see Climate Budgeting Workgroup Report). It may be to consider a team approach to avoid the same challenges encountered by New York City staff.

“With regard to climate change knowledge, and expertise within departments and staff, it is hit or miss, but has increased over time and with experience. The City started about 5 years ago with

*a resilience officer in each department. However, it was “other duties as assigned” for existing personnel, and it was hard to get people to put in the time and there was divergent knowledge, expertise, and interest. Today, the departments are more likely to have **teams dealing with resiliency and sustainability** as a result of their experience undertaking challenging projects and as part of their regular jobs (in departments like sanitation, housing, transportation, as well as environmental protection). Even departments that struggle with budget issues have resilience/sustainability teams.” (Appendix E, Climate Budgeting Workgroup Report.)*

G-7 - Evaluate and Update County Planning, Policy, and Operations Activities to Account for the Risks of Climate Change Impacts and Prioritize the Needs of Vulnerable Residents

- Add **Codes** to the title
- Add **stormwater management** to the second sentence
- Revise the discussion to underscore the recommendation to actually have county departments undertake evaluations of their programs to identify areas for improvement. As written, it is not an action - it’s a description of a concept.

G-9- Incorporate Climate Considerations into the County’s Budgeting Processes

- This action should more clearly describe the process by which the County will include climate considerations into its budgeting process. As important if not more important, the action should describe how the County will allocate the needed resources to implement the Plan. It is not simply a matter of incorporating climate into budgeting but rather ensuring there is sufficient budget to address climate.

G-10 - Develop Financing Strategies for Implementing Climate Actions and Incorporate Climate Considerations into County Finance Practices

- This is an extremely high priority action; without funding, it will be very difficult to implement the Plan.
- The final Plan should provide a timeframe for convening the group and when it must provide its recommendations.
- The final Plan should expand this action to include not only existing sources of funds but potential sources, particularly as it relates to state actions. For example, it should be a priority for Maryland to join the Transportation Climate Initiative because it could provide a reliable source of funds for electrifying the transportation sector. The County should not have to shoulder the public cost of implementing the Plan alone. Every action that Montgomery County successfully takes to reduce GHG emissions also helps Maryland reach its goals.

G-11 - Develop Climate, Energy, Health, and Racial Equity Metrics and a Data-Driven Assessment and Reporting Process

- How will metrics and goals be set? What is the prioritization process? The process should be made clear in the final Plan.

- Additionally, a metric should be included for job creation and/or expansion of green businesses. Hopefully implementation of the Plan will promote green jobs in the County, including those that promote resilience.

G-15 - Consolidate County Climate Data

- Add creation of a GIS for analyzing all this data.
- Include demographics, location of infrastructure, age of infrastructure, areas of development and redevelopment, topography, etc.
- Build modeling tools for conducting ‘what-if’ analyses (what if it rained x% more, or was 3 degrees hotter) for assessing decision sensitivity.

G-16 - Conduct Climate Vulnerability Detailed Assessments

- This action needs more discussion, because most people won’t read Appendix C. In addition, the approach needs some modification for future assessments, i.e., the discussion should include the intention to do something more in-depth in the future, that includes more bottom up modeling and not just downscaling.
- Is the recommendation for vulnerability assessments only for ‘key assets’ and only in areas of ‘high hazard’? How do you know where the high hazard areas are before doing an assessment? Suggest revising as follows: *“The County should conduct more fine-turned assessments **to identify current and future** ~~of key assets located within areas of high climate hazards~~ **and vulnerabilities.**”*

7. Public Engagement, Partnerships, and Education

A. Action-Specific Recommendations

P-1 - Undertake Vigorous Public Outreach Campaign Aimed at Empowering the Public With Information on How to Reduce Emissions and Adapt to the Impacts from Climate Change (p. 195)

This section describes some outreach that can help convince MoCo citizens that climate activities are needed and may be rewarding. This part will be essential to building support for the climate program. Therefore, it should be fleshed out more fully. In particular, the County will want to use a full range of media – which in the current draft goes almost unmentioned. For example: television and radio, Internet and County websites, social media (Facebook, Twitter, and whatever comes next), video games, advertising, public service announcements, billboards, posters, digital signage, newspapers (a full-page ad in the Post still gets attention).

P-11 - Establish a Statewide Coalition of Local Governments Focused on Advancing Ambitious State Climate Policy by Collectively Advocating their Positions before the State Legislature, Public Services Commission, and the Utility Companies

- Add the very last sentence to the Adaptation Section. Furthermore, the County should be a formal member of the MD Climate Change Commission to secure the needed actions administered by the executive agencies (not just legislative).

B. County Resilience Ambassadors

Is there a report of what came out of the 130 conversations with the County Resilience Ambassadors? Maybe include it in the Appendix.

8. What Can I Do?

Adaptation was not included in this section, only mitigation. Resilience depends upon people protecting themselves, their families, their homes, their businesses, in addition to steps the County can take. The final Plan should include a corollary section on what people can do to build their own resilience.

9. Paying for Climate Action

This section should be moved to the front of the document. It is much too important to be at the very end of the Plan on page 225. The public needs to understand from the beginning of the Plan that action is costly but inaction is more costly in the long term, and that steps to reduce GHG emissions can position the County for the future and have economic and health benefits. Additionally, the final Plan should include much more detail regarding how to pay for the actions. Cost is a critical element of implementing the Plan. As noted above, costs should be included in the discussion of priorities, and initial ideas of how to pay for actions is extremely important.

10. Looking Forward

There were understandable time constraints for dealing with economic development and it is a positive sign that the County plans to produce a companion report on this topic. Please be sure to include climate adaptation in the report. As noted above, there is the issue of climate refugees and climate migration. As sea level rises and flooding worsens, people will relocate. Part of economic development is leveraging such population movement to the economic benefit of the County.